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STEP

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TITLE: Thermographical investigation of the  $K_2TiF_6$ -NaCl- $TiO_2$  system

SOURCE: Akademiya nauk Kazakhskoy SSR. Institut metallurgii i obogashcheniya. Trudy. v. 5, 1962, Tsvetnaya metallurgiya, 82 - 94

TEXT: Using Kurnakov's thermal method the authors investigated the phase diagram of the  $K_2TiF_6$ -NaCl- $TiO_2$  system near binary eutectics  $K_2TiF_6$ -NaCl and  $K_2TiF_6$ - $TiO_2$ . Batches of these substances were mixed, remelted and heated in platinum crucibles or blocks placed in a pyrometrical apparatus. After thermographical inspection thermograms of 78 compositions were taken. On the basis of results obtained from thermographical, roentgenostructural and crystallographical analyses a phase diagram of the system and phase diagrams of the binary systems were plotted. A spatial diagram of the system in the investigated range is presented and described. Polythermic cross-sections of the system are given at a constant 1-, 2-, 3- and 4-% content of titanium dioxide. A fusibility diagram

Card 1/4

S/817/62/005/000/005/012  
A006/A101

Thermographical investigation of the...

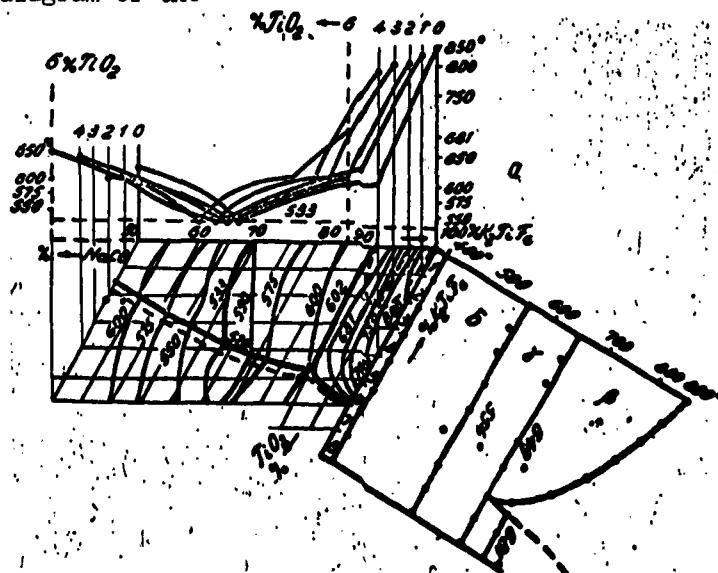
of the system is plotted on the concentration triangle and the boundaries of lamination zones are determined (Figure 13). The behavior of the basic component of the alloys - potassium fluorotitanate - was analyzed. On the basis of previous data, obtained by Kolomitskiy, Milov, Ponomarev and Putilin, it is assumed that this component is present in three polymorphous forms. For pure potassium fluorotitanate the following modifications are to be considered:  $\delta$  - stable in a range from room temperature to  $380^\circ C$ ;  $\gamma$  - stable in a  $280 - 640^\circ C$  range;  $\beta$  - stable at temperature over  $640^\circ C$ . Starting from  $680^\circ C$  noticeable dissociation begins. Full melting takes place at about  $850^\circ C$ . There are 17 figures and 1 table.

Card 2/4

Thermographical investigation of the...

S/817/62/005/000/005/012  
A006/A101

Figure 13. Fusibility diagram of the  
 $K_2TiF_6$ - $NaCl$ - $TiO_2$  system

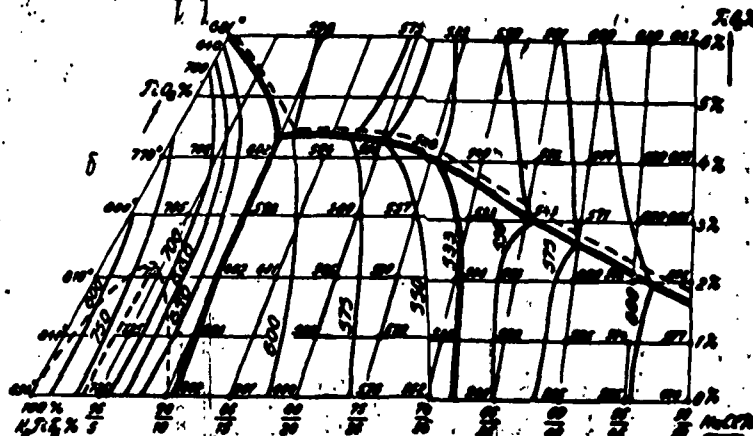


Card 3/4

Thermographical investigation of the ...

S/817/62/005/000/005/012  
A006/A101

Figure 13  
(continued)



Card 4/4